

1 3.3.8 HYDROLOGY AND WATER QUALITY

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project:</i>				
(a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(c) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(d) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river or, by other means, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(g) Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

1 Environmental Setting

2 Regional Hydrologic Setting

3 The Project area lies within the San Francisco Bay Area Hydrologic Basin. The
4 San Francisco Bay functions as the drainage outlet for waters of the Central Valley and
5 includes the main Bay segments such as San Pablo and Suisun Bays. The region's
6 waterways, wetlands, and bays mark the centerpiece of the United States' fourth largest
7 metropolitan region. Because of its highly dynamic and complex environmental
8 conditions, the basin supports an extraordinarily diverse and productive ecosystem.
9 The basin's deepwater channels, tidelands, and marshlands provide a wide variety of
10 habitats that have become increasingly vital to the survival of several plant and animal
11 species.

12 San Francisco Bay can be divided into distinct water bodies that have different physical
13 and chemical properties. The northern reach includes three major embayments:
14 Suisun Bay, San Pablo Bay, and Central Bay. The northern reach conveys outflow from
15 the Delta at its head and thus can be considered to be a typical estuary. Central Bay is
16 deeper and more oceanic in character than the northern and southern reaches because
17 of its proximity to ocean inflow through the Golden Gate, a deep narrow channel
18 through the coastal range. The southern reach is separated from the northern reach by
19 the Central Bay and extends from the Oakland Bay Bridge to San Jose.

20 Freshwater strongly influences environmental conditions in the San Francisco Bay
21 Estuary. Over 90 percent of the estuary's fresh water originates from the Sacramento-
22 San Joaquin drainage basin and enters the northern reach. The Sacramento River
23 provides about 80 percent of this flow, and the San Joaquin River and other streams
24 contribute the remainder. The remaining 10 percent of freshwater comes from the
25 San Francisco Bay watershed and flows into the southern reach. The southern reach,
26 like the northern reach, has the physiographic characteristics of an estuary but lacks the
27 fresh water inflow to drive a strong estuarine circulation. As a result, circulation in the
28 southern reach is influenced predominantly by tides, evaporation, and wastewater
29 discharges and thus functions much like a tidally oscillating lagoon for most of the year.

30 In the San Francisco Bay Basin Plan, the Regional Water Quality Control Board
31 (RWQCB) identifies a number of beneficial uses of San Pablo Bay that must be
32 protected. The beneficial uses include commercial and sport fishing, estuarine habitat,
33 industrial service supply, fish migration, navigation, recreation, wildlife habitat, estuarine

habitat, preservation of rare and endangered species, fish spawning, and wildlife habitat (RWQCB 2007).

Climate

Western Contra Costa County has a moderate climate with an annual precipitation average that is approximately 23 inches per year. The climate is generally characterized by relatively cool summers and mild winters. In summer, a steady marine wind blows through the Golden Gate and up the Carquinez Strait. This moderating influence is reflected in average July temperatures of 65 degrees Fahrenheit (°F) and average January temperatures of 50°F.

Project Setting

The Coscol Marine Oil Terminal Deconstruction and Pipeline Abandonment Project (proposed Project) area is primarily located offshore within San Pablo Bay, but also extends on land south of Lone Tree Point in and near the town of Rodeo in western Contra Costa County. The land-based portion of the Project area lies within the Refugio Creek watershed. Refugio Creek has a total length of 4-½ miles and flows largely through a residential use area before emptying into San Pablo Bay.

Water Quality

As required by the Clean Water Act, described below, the RWQCB has identified San Pablo Bay as an impaired water body for the following contaminants as part of what is known as the 303(d) list: chlordane, pesticides, i.e., DDT and dieldrin, dioxins, furan compounds, exotic species, mercury, PCBs, selenium, nickel, and diazinon. The sources of these pollutants or stressors include nonpoint sources from urban development, atmospheric deposition, ballast water, industrial and municipal point sources, agriculture, natural sources, and exotic species.

Pollutants of Concern (POCs) that are not specified within the 303(d) list for San Pablo Bay are addressed by the California Toxics Rule (CTR) which compiles recommended water quality criteria for priority pollutants. The CTR includes Criteria Maximum Concentrations (CMC) which are estimates of the highest concentration of a POC in surface water to which an aquatic community can be exposed briefly without resulting in an unacceptable effect. Table 3.3.8-1, below, presents CMC concentrations along with data collected for the Regional Monitoring Program (RMP) for Water Quality in the

**Table 3.3.8-1: Comparison of RMP Water Column Analytical Data
(Total Fraction) Collected 1993-2001 with California Toxics
Rule Water Quality Criteria**

POC	CMC (µg/L)	Davis Point RMP Station (BD40) max (µg/L)	Davis Point RMP Station (BD40) avg (µg/L)
Arsenic	69	7.69	2.80
Cadmium	42	0.14	0.07
Copper	4.8	20.19	5.75
Lead	210	1.68	6.54
Mercury	1.8	0.02	0.09
Nickel	74	36.33	9.17
Selenium	290	0.50	0.21
Silver	1.9	0.10	0.02
Zinc	90	50.18	11.26

Source: AMS 2008.

San Francisco Estuary at the Davis Point (BD40) sample location, which is located just west of the Coscol MOT; this monitoring was conducted at least once annually from 1993 through 2001. These results suggest that, with the exception of copper, ambient conditions near the proposed Project site are typically well below those considered acutely toxic.

Groundwater

Shallow groundwater aquifers are closely linked to the local surface waters. As surface water runoff flows from the East Bay Hills toward the Bay, it percolates through permeable alluvial soils into underlying shallow groundwater systems. Deeper groundwater aquifers are also present, separated in areas from shallow groundwater by low permeability soil layers. Western Contra Costa lies within the East Bay Plain groundwater basin (DWR 2003). The East Bay Plain groundwater basin is generally not used for any water supply sources.

Regulatory Setting

Federal

Federal Clean Water Act

Under the Clean Water Act (CWA) of 1977, the U.S. Environmental Protection Agency (EPA) seeks to restore and maintain the chemical, physical, and biological integrity in the nation's waters. The statute employs a variety of regulatory and nonregulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The CWA authorizes the EPA to implement water quality regulations. The EPA has delegated authority for water permitting to the California State Water Resources Control Board (SWRCB), which has nine regional boards. The San Francisco Bay Regional Water Quality Control Board (RWQCB) regulates water quality in the Project area.

Section 303 of the Clean Water Act requires states to establish water quality standards consisting of designated beneficial uses of water bodies and water quality standards to protect those uses for all waters of the United States. Under Section 303(d) of the Clean Water Act, states, territories and authorized tribes are required to develop lists of impaired waters. Impaired waters are those that do not meet water quality standards, even after point sources of pollution have installed the required levels of pollution control technology. The law requires that these jurisdictions establish priority rankings for waterways on the lists and develop action plans to improve water quality. This process includes development of Total Maximum Daily Loads (TMDL) that set waste load¹ allocations for point source and load allocations for non-point source pollutants. The Ducheny Bill (AB 1740) requires the State Water Resources Control Board and its nine Regional Water Quality Control Boards to post this list and to provide an estimated completion date for each TMDL.

National Pollutant Discharge Elimination System

Part of the Clean Water Act provides for the National Pollutant Discharge Elimination System (NPDES), in which discharges into navigable waters are prohibited except in compliance with specified requirements and authorizations. Under this system, municipal and industrial facilities are required to obtain a NPDES permit that specifies allowable limits, based on available wastewater treatment technologies, for pollutant

¹ The load represents the total amount of a pollutant that can be discharged over a given time period. This differs from the discharge limits that usually focus on the concentration of a pollutant in the wastewater discharged into the receiving water.

levels in their effluent. In California, the EPA has delegated the implementation of this program to the State Board and to the Regional Boards.

State

Porter-Cologne Act

The State Board and the Regional Boards share the responsibility under the Porter-Cologne Act to formulate and adopt water policies and plans, and to adopt and implement measures to fulfill Clean Water Act requirements. Specific to the proposed Project area, the Regional Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) serves to protect the water quality of the State consistent with identified beneficial uses.

Prior to authorizations of waste discharge by the Regional Board, the Porter-Cologne Act requires reports of waste discharges to be filed. The Regional Board then prescribes Waste Discharge Requirements, which serve as NPDES permits under a provision of the Porter-Cologne Act. The Basin Plan, the Enclosed Bays and Estuaries Plan, and the NPDES permit, regulate discharges from the Refinery wastewater treatment plant into San Pablo Bay.

State Water Resources Control Board

The State Board administers water rights, water pollution control, and water quality functions statewide. The State Board provides policy guidance and budgetary authority to nine Regional Boards, which conduct planning, permitting, and enforcement activities. The State Board shares the authority for implementation of the Clean Water Act and the State Porter-Cologne Act with the Regional Boards. The water quality near the Pacific Refinery is under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB).

Developed to apply statewide to all enclosed bays and estuaries, the Enclosed Bays and Estuaries Plan was one of the water quality policies that the State Board developed for California. As defined by the State Board, enclosed bays are indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. San Francisco Bay and its constituent parts, including San Pablo Bay, fall under this category. However, State water quality control plans with water quality criteria for priority toxic pollutants were subsequently invalidated by a State court order in 1994.

1 *Water Quality Control Plan for the San Francisco Region (Basin Plan)*

2 The RWQCB is responsible for developing and implementing the Water Quality Control
3 Plan for the San Francisco Region (Basin Plan), which documents approaches to
4 implementing State and Federal policies in the context of actual water quality
5 conditions. The Regional Board's other activities include permitting of waste
6 discharges, and implementing monitoring programs of pollutant effects.

7 On June 21, 1995, the Board adopted a revised Basin Plan, which the SWRCB and the
8 Office of Administrative Law approved in 1995. The Basin Plan identifies beneficial
9 uses of receiving waters, water quality objectives imposed to protect the designated
10 beneficial uses, and strategies and schedules for achieving water quality objectives.
11 Section 303 (c) (2) (B) of the Clean Water Act requires Basin Plans to include water
12 quality objectives governing approximately 68 of the EPA's list of 126 pollutants.

13 Water Quality objectives are achieved primarily through the establishment and
14 enforcement of Waste Discharge Requirements for each wastewater discharger. The
15 Basin Plan was amended in 1992 to include stricter water quality criteria than had
16 previously been adopted under the 1991 Enclosed Bays and Estuaries Plan. Although
17 the Enclosed Bays and Estuaries Plan was later invalidated by court order, certain
18 water quality criteria that were based on that plan remain in the Basin Plan. State policy
19 for water quality control in California is directed toward achieving the highest water
20 quality consistent with maximum benefit to the people of the State. Therefore, all water
21 resources must be protected from pollution and nuisance that may occur from waste
22 discharges. Beneficial uses of surface waters, ground waters, marshes, and mud flats
23 serve as a basis for establishing water quality standards and discharge prohibitions to
24 attain this goal.

25 The State Implementation Policy (SIP), also implemented by the RWQCB, establishes
26 the policy for determining effluent limitations for toxic pollutants. The SIP establishes
27 the implementation policy for all toxic pollutants including dioxins and furans. The SIP
28 also requires monitoring for a minimum of 3 years by all major NPDES dischargers for
29 the seventeen dioxin and furan compounds, whether or not a limit is necessary to
30 prevent exceedance of the water quality standard that has been established for one of
31 the dioxin compounds (2,3,7,8-TCDD). In summary, the steps involve:

- 32 • Identifying applicable criteria and objectives;

- Determining whether there is a reasonable potential for the pollutant to cause or contribute to exceedance of a water quality criterion or objective;
- Calculating a value for the effluent limit taking into consideration the applicable criteria or objective, and discharge variability; or
- If a TMDL is in effect, assigning a portion of the loading capacity to the discharge.

Local

Bay Conservation and Development Commission

The San Francisco Bay Plan was completed and adopted by the San Francisco Bay Conservation and Development Commission in 1968 and submitted to the California Legislature and Governor in January 1969. The Bay Plan was prepared by the Commission over a three-year period pursuant to the McAteer-Petris Act of 1965 which established the Commission as a temporary agency to prepare an enforceable plan to guide the future protection and use of San Francisco Bay and its shoreline. In 1969, the California Legislature acted upon the Commission's recommendations in the Bay Plan and revised the McAteer-Petris Act by designating the Commission as the agency responsible for maintaining and carrying out the provisions of the Act and the Bay Plan for the protection of the Bay and its great natural resources as well as the development of the Bay and shoreline to their highest potential with a minimum of Bay fill.

The McAteer-Petris Act directs the Commission to exercise its authority to issue or deny permit applications for placing fill, extracting materials, or changing the use of any land, water, or structure within the area of its jurisdiction, in conformity with the provisions and policies of both the McAteer-Petris Act and the San Francisco Bay Plan. Thus, the Commission is directed by the Act to carry out its regulatory process in accordance with the Bay Plan policies and Bay Plan maps which guide the protection and development of the Bay and its tributary waterways, marshes, managed wetlands, salt ponds, and shoreline. The Bay Plan policies relate to the safety of fills, dredging and protection of shoreline among other issues.

The Commission is charged with:

- Regulating all filling and dredging in San Francisco Bay (which includes San Pablo and Suisun Bays, sloughs and certain creeks and tributaries that are part of the Bay system, salt ponds and certain other areas that have been diked-off from the Bay).

- Regulating new development within the first 100 feet inland from the Bay to ensure that maximum feasible public access to the Bay is provided.
- Minimizing pressures to fill the Bay by ensuring that the limited amount of shoreline area suitable for high priority water-oriented uses is reserved for ports, water-related industries, water-oriented recreation, airports and wildlife areas.
- Pursuing an active planning program to study Bay issues so that Commission plans and policies are based upon the best available current information.
- Administering the Federal Coastal Zone Management Act within the San Francisco Bay segment of the California coastal zone to ensure that Federal activities reflect Commission policies.
- Participating in the region-wide State and Federal program to prepare a Long Term Management Strategy (LTMS) for dredging and dredge material disposal in San Francisco Bay.

Contra Costa County Watershed Program (CWP)

The Contra Costa County Watershed Program (CWP) is responsible for implementation and enforcement of the stormwater quality program in the unincorporated area of Contra Costa County. The CWP includes: new development and construction controls; public education and industrial outreach; municipal maintenance; inspection activities; and illicit discharge control activities. CWP staff implements the Contra Costa Clean Water Program Joint Municipal National Pollutant Discharge Elimination System (NPDES) permits issued by the San Francisco Bay Regional Water Quality Control Board and the Central Valley Regional Water Quality Control Board (Central Valley RWQCB) for the unincorporated areas of the County. The Joint Municipal NPDES permits contain a comprehensive plan to reduce the discharge of pollutants in storm water to the "maximum extent practicable" (MEP). Many of the requirements of the CWP would not apply to the proposed Project with the exception of the construction controls enforcement.

Contra Costa County General Plan

Contra Costa County General Plan policies to which the Project would be required to conform include:

Water Resources Goals

Goal 8-T: To conserve, enhance, and manage water resources, protect their quality, and assure an adequate long-term supply of water for domestic, fishing, industrial, and agricultural use.

General Water Resources Policies

Policy 8-75: Preserve and enhance the quality of surface and groundwater resources.

Policies for Activity Along Natural Watercourses

Policy 8-91: Grading, filling, and construction activity near watercourses shall be conducted in such a manner as to minimize impacts from increased runoff, erosion, sedimentation, biochemical degradation, or thermal pollution.

Impact Analysis and Mitigation

Impact Discussion

- (a) The proposed deconstruction of the marine terminal and abandonment of associated pipelines would occur over a projected 5-½ month period. The deconstruction activities would be conducted according to several plans submitted to and approved by the California State Lands Commission (CSLC) prior to the initiation of any deconstruction activities including a Marine Safety Plan, Seafloor Debris Removal Plan, Rigging and Lifting Plan, Traffic Control Plan, Critical Operations and Curtailment Plan, Marine Communication Plan, Marine Transportation Plan, Navigation Marking and Lighting Plan, Anchoring Plan, and Oil Spill Response Plan. These plans would specify the measures required to contain debris and fluids during deconstruction activities such as use of a temporary lumber or similar substructure beneath the work areas to contain falling debris or containment systems to catch cutting fluids that might otherwise enter the bay. For work within San Pablo Bay, the Project would be required to obtain permits from or coordinate with the following agencies: Regional Water Quality Control Board (401 Water Quality Certification Permit), U.S. Fish and Wildlife Service (USFWS); San Francisco Bay Conservation and Development Commission (BCDC) (Administrative Permit), National Marine Fisheries Service (NMFS), U.S. Army Corps of Engineers (ACOE) (section 404 Permit), and California Department of Fish and Game (CDFG).

Preliminary work on the decommissioning of the former operational activities at the Project site in 1997 included the draining and venting of petroleum from the remaining deck-mounted equipment. Prior to removal, the presence of any residual petroleum in the deck-mounted equipment will be verified and if present, flushed according to work plans mentioned above. Provided that this flushing is conducted with appropriate secondary containment measures employed, the potential release of petroleum residues to San Pablo Bay would be minimized. In addition, as discussed in Section 3.3.7, Hazardous Materials, a complete survey of hazardous materials such as lead-based paint, asbestos containing materials, mercury, and PCBs would be conducted prior to deconstruction activities. Abatement of any identified hazardous materials by certified contractors according to applicable laws would follow the survey.

The creosote-treated timber piles would be removed either through the use of a vibratory hammer or broken off by a crane or tugboat. The most practical and feasible method would be developed through pilot testing and decided in cooperation with the NMFS. Either method would employ measures to minimize creosote release, sediment disturbance and total suspended solids such as use of a floating surface boom to capture floating surface debris, keeping all equipment (e.g., bucket, steel cable, vibratory hammer) out of the water, gripping piles above the waterline; slowly lifting the piles from the sediment and through the water column, and placing the pile in a containment basin on a barge deck, pier, or shoreline without attempting to clean or remove any adhering sediment. However, removal of these piles cannot occur without some level of disturbance to sediments. Disturbance of potentially contaminated sediments could affect water quality. Sediment samples were analyzed during 2000 and 2001 from a location 1,000 feet southwest of the west end of the Coscol terminal. The results showed that trace metals such as silver, arsenic, chromium, copper, mercury, nickel, lead, and zinc were present in the sediment samples analyzed. However, as shown in Table 3.3.8-1, with the exception of copper, the levels of metals within the water column in the area of the MOT are well below what is considered by the CTR as acutely toxic. Of the pollutants of concern (POC) listed for San Pablo Bay, only mercury and PCBs, would be considered as a potential POC currently found at the Project site based on a recent site visit. While dioxins and selenium have an association with oil and gas operations, neither of these POCs were associated with former operations at the Project site (AMS 2008).

PCBs are a major concern in most areas of the San Francisco Estuary. Because of their sediment-associated nature, concentrations of PCBs in surface sediments are the best indicator of the spatial distribution of PCB impairment in the Estuary (AMS 2008). In comparing samples collected throughout San Pablo Bay (average 4.2 nanograms per gram [ng/g] from 2004 to 2007) to Central (6.9 ng/g), South (6.5 ng/g), and Lower South Bay (7.5 ng/g), San Pablo Bay and Suisun Bay (2.0 ng/g) have relatively low concentrations in surface sediments (AMS 2008). Concentrations of PCBs within the water column are highly variable, and not as good an indicator of impairment. PCBs could potentially be found in remaining on-deck equipment as it was commonly used at one time for electrical equipment such as transformers. However, as described above, any potential PCBs remaining on site should be discovered through the hazardous materials surveys as described in Section 3.3.7, Hazardous Materials, and handled with appropriate measures to contain and remove any potential PCBs from the site. Similarly, some of the remaining equipment on the deck of the MOT may potentially contain mercury in such items as gauges, pressure switches and possibly other instruments and lighting. These would also likely be discovered during the hazardous materials survey and abatement conducted by certified contractors.

Additionally, the San Francisco Bay Basin Plan includes water quality objectives for POCs not currently identified as impairing San Pablo Bay, but for which

criteria have been established to prevent possible future impairment. Several of these objectives are narrative criteria without quantitative thresholds. For example, contribution of floating materials (solids, liquids, foams, and scum), settleable materials, or odors that are deemed to be a nuisance or otherwise affect beneficial uses should be avoided.

Impact HYD-1: Discharges of waste material could degrade water quality.

Improperly planned deconstruction activities could result in temporary discharges of waste material which could degrade water quality. (Potentially Significant, Class II)

All work would be done according to the approved plans and permits including the RWQCB 401 Water Quality Certification Permit and the ACOE section 404 Permit which would be issued in accordance with the water quality standards of the Basin Plan. The land-based portions of the proposed Project would be limited to the removal of the vault, and while it would require some earthwork activities it would not disturb more than one acre and thus not require a General Construction Permit from the RWQCB. As such, the amount of disturbance is not significant and current standard construction practices would be employed to minimize sedimentation to San Pablo Bay. The proposed Project would not include any elements that would require waste discharges. Proposed Project plans include measures to contain any potential spills or falling debris from entering the Bay. In addition, following completion of the proposed Project, the existing structures and related appurtenances, some of which contain hazardous materials, would be removed from the Bay or sealed from further potential contact with Bay waters.

Mitigation Measure for Impact HYD-1:

MM HYD-1. Work Plans. The applicant shall obtain written approval of all proposed work plans and permits from the overseeing agencies including the RWQCB, ACOE and the Bay Coastal Development Commission prior to commencement of deconstruction activities. The work plans shall include secondary containment measures to prevent any hazardous materials or debris from entering San Pablo Bay. The creosote timber removal procedure shall be approved of by the NMFS in writing prior to commencement of their removal. All work plans shall be in accordance with approved 401 Water Quality Certification Permit, section 404 Permit, and Administrative Permit from the BCDC and any comments from issuing agencies incorporated into project specifications.

In addition, implementation of **MM BIO-4a** through **BIO-4f** and **HAZ-1a** found in Section 3.3.4, Biological Resources would also reduce the potential release of hazardous materials into surface waters that might adversely impact water quality.

Rationale for Mitigation

Implementation of **MM HYD-1** would ensure that agency oversight is maintained for the protection of water quality for work within and near the San Pablo Bay. Due to the number of agencies that will have some level of involvement and the potential ensuing deferment to another agency, this mitigation measure ensures that protection measures are incorporated into proposed Project specifications. Therefore, **MM HYD-1** combined with **MM BIO-4a** through **BIO-4 f** and **HAZ-1a** would reduce the potential impact to less than significant levels.

(b) The Project is primarily located offshore with some land-based elements. The deconstruction activities would not require the use of any groundwater supplies. No impervious surfaces would be introduced as a result of the Project and therefore would not interfere with groundwater recharge. Therefore, there would be no impact to the aquifer volume either through groundwater extraction or reduced groundwater recharge. (No Impact)

(c) As stated above, the Project is primarily located offshore. The abandonment of the pipelines and access vault would not substantially alter the existing drainage pattern. Following removal of the vault concrete and pipeline abandonment, the vault area would be backfilled with imported fill materials. However, the vault is relatively small² and would not constitute a substantial change in drainage patterns. There would be no impact relating to altered drainage patterns and erosion or siltation on- or off-site. (No Impact)

(d) As mentioned above, the Project would not introduce any additional impervious surfaces nor would it alter the course of a stream or river. Therefore, there would be no impact resulting from increased runoff causing flooding on- or off-site. (No Impact)

(e) The Project does not include any elements that would produce runoff that would be directed toward any existing or planned drainage systems. Runoff currently occurs directly into San Pablo Bay for the marine terminal and towards the Bay for the land-based portions. The removal of the marine terminal would potentially result in a reduction of potential polluted runoff from any remaining hazardous

² The exact dimensions of the vault cannot be determined from available drawings and because the vault is covered with a concrete apron. The concrete apron vault is approximately 25 feet wide and extends about 20 to 25 feet from the shoreline.

materials that remain in some of the deck-mounted equipment. Overall, there would be no impact related to quantity or quality of stormwater runoff. (No Impact)

(f) See responses to subsections (a) and (e) above.

(g) There is no proposed housing as part of the proposed Project and therefore there is no impact related to placement of housing in a 100-year flood hazard area. (No Impact)

(h) No structures are proposed as part of the Project and therefore there would be no impact related to placement of structures within a 100-year flood hazard area. (No Impact)

(i) According to mapping compiled by the Association of Bay Area Governments, the land-based portions of the Project are not located within an inundation area for any regional dams and there would be no impact (ABAG 2008). (No Impact)

(j) The proposed Project site is primarily located within San Pablo Bay but some of the proposed temporary construction work is located on land adjacent to the Bay shore. Tsunamis (seismic sea waves) are long period waves that are typically caused by underwater disturbances (landslides), volcanic eruptions, or seismic events. Areas that are highly susceptible to tsunami inundation tend to be located in low-lying coastal areas such as tidal flats, marshlands, and former bay margins that have been artificially filled but are still at or near sea level. The highest risks of tsunami waves are located along the Pacific coastline. Due to attenuation within the Bay, a 20-foot wave at the Golden Gate would diminish to a height of approximately 2 feet near the Carquinez Strait. A seiche is a free or standing wave oscillation(s) of the surface of water in an enclosed or semi-enclosed basin, such as San Pablo Bay, that may be initiated by an earthquake. Due to the relatively large size of San Pablo Bay with an inlet to the south and an outlet to the west, the hazard of seiche waves is interpreted to be low. The proposed Project site is not located in an area that is susceptible to mudflows.

Considering the relatively short deconstruction period of the proposed Project, the likelihood of tsunami or seiche waves affecting site workers to some degree is considered possible but not probable. Therefore, the potential impact is considered less than significant. (Class III)